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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/808,007	03/24/2004	Esa Paatero	9060-228	5679
20792	7590	07/10/2009	EXAMINER	
MYERS BIGEL, SIBLEY & SAJOVEC			PATEL, RAJNICKANT B	
PO BOX 37428			ART UNIT	PAPER NUMBER
RALEIGH, NC 27627			2838	
MAIL DATE		DELIVERY MODE		
07/10/2009		PAPER		

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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte ESA PAATERO

Appeal 2009-002565
Application 10/808,007¹
Technology Center 2800

Decided:² July 10, 2009

Before JOSEPH F. RUGGIERO, MARC S. HOFF, and THOMAS S. HAHN, *Administrative Patent Judges*.

HOFF, *Administrative Patent Judge*.

DECISION ON APPEAL

STATEMENT OF CASE

Appellant appeals under 35 U.S.C. § 134 from a Final Rejection of claims 1-48. We have jurisdiction under 35 U.S.C. § 6(b).

We reverse.

¹ The real party in interest is Eaton Electrical, Inc.

² The two-month time period for filing an appeal or commencing a civil action, as recited in 37 C.F.R. § 1.304, begins to run from the decided date shown on this page of the decision. The time period does not run from the Mail Date (paper delivery) or Notification Date (electronic delivery).

Appellant's invention relates to a power conversion apparatus such as an uninterruptible power supply (UPS). The apparatus includes a DC link including first and second DC busses and a reference bus, and a precharge coupled to the DC link and operative to charge a first capacitance between the first DC bus and the reference bus and to transfer charge from the charged first capacitance to a second capacitance between the second DC bus and the reference bus (Spec. 2).

Claims 1 and 19 are exemplary:

1. A power conversion apparatus comprising:
a DC link comprising first and second DC busses and a reference bus;
a DC generator circuit coupled to the DC link and operative to generate first and second DC voltages with respect to the reference bus on respective ones of the first and second DC busses; and
a precharge circuit coupled to the DC link and operative to charge a first capacitance between the first DC bus and the reference bus and to transfer charge from the charged first capacitance to a second capacitance between the second DC bus and the reference bus.

19. A power conversion apparatus comprising:
a DC bus;
a buck converter circuit coupled to the DC bus and operative to charge a capacitance coupled to the DC bus; and
a boost converter circuit coupled to the DC bus and operative to commence generating a DC voltage on the DC bus from an AC source and/or a DC source after the buck converter circuit precharges the DC bus.

The prior art relied upon by the Examiner in rejecting the claims on appeal is:

Johnson, Jr.	US 6,483,730 B2	Nov. 19, 2002
Johnson, Jr.	US 6,819,576	Nov. 16, 2004

Claims 1-48 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Johnson '576 in view of Johnson '730.

Throughout this decision, we make reference to the Appeal Brief ("Br.," filed March 7, 2008) and the Examiner's Answer ("Ans.," mailed June 10, 2008) for their respective details.

ISSUES

Appellant argues that the Examiner's asserted combination fails to teach a precharge circuit operative to charge a first capacitance between the first DC bus and the reference bus and to transfer charge from the charged first capacitance to a second capacitance between the second DC bus and the reference bus (Br. 5-6). With respect to claim 19, Appellant further argues that Johnson '576 in view of Johnson '730 fails to teach a buck converter and boost converter coupled to the DC bus as particularly claimed (Br. 6). The Examiner finds that battery converter circuit 330 of Johnson '576 corresponds to the claimed precharge circuit (Ans. 5).

The contentions of Appellant and the Examiners, thus, present us with the following issues:

1. Has Appellant shown that the Examiner erred in finding that Johnson '576 in combination with Johnson '730 teaches a precharge circuit coupled to a DC link and operative to charge a first capacitance between a first DC bus and a reference bus and to transfer charge from the charged first capacitance to a second capacitance between a second DC bus and the reference bus?

2. Has Appellant shown that the Examiner erred in finding that Johnson '576 in combination with Johnson '730 teaches a buck converter

circuit coupled to the DC bus, and a boost converter circuit coupled to the DC bus operative to commence generating a DC voltage after the buck converter circuit precharges the DC bus, as recited in claim 19?

FINDINGS OF FACT

The following Findings of Fact (FF) are shown by a preponderance of the evidence.

The Invention

1. According to Appellant, the invention concerns a power conversion apparatus such as an uninterruptible power supply (UPS). The apparatus includes a precharge circuit operative to charge a first capacitance between the first DC bus and the reference bus and to transfer charge from the charged first capacitance to a second capacitance between the second DC bus and the reference bus (Spec. 2).

Johnson '576

2. Johnson '576 teaches a power converter such as an uninterruptible power supply, including a multifunction rectifier operative to control relative magnitudes of the DC voltages generated by the auxiliary DC voltage generator (Abstract).

Johnson '730

3. Johnson '730 teaches a power converter having “boost” phases, in which the desired AC output voltage V_{out} exceeds the DC input voltage V_{DC} , and “buck” phases, in which the desired AC output voltage V_{out} falls below the DC input voltage V_{DC} (col. 10, ll. 11-13 and 47-50).

PRINCIPLES OF LAW

On the issue of obviousness, the Supreme Court has stated that “the obviousness analysis cannot be confined by a formalistic conception of the words teaching, suggestion, and motivation.” *KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 419 (2007). Further, the Court stated “[t]he combination of familiar elements according to known methods is likely to be obvious when it does no more than yield predictable results.” *Id.* at 416. “One of the ways in which a patent’s subject matter can be proved obvious is by noting that there existed at the time of the invention a known problem for which there was an obvious solution encompassed by the patent’s claims.” *Id.* at 419-420.

ANALYSIS

CLAIMS 1-18 AND 20-48

Independent claims 1, 20, 25, and 40 each recite either (a) a precharge circuit operative to transfer charge from a charged first capacitance to a second capacitance, or (b) transferring charge from a charged first capacitance to a second capacitance.

The Examiner finds that battery converter circuit 330 of Johnson ‘576 meets the recited precharge circuit (Ans. 6-7). We have reviewed Johnson ‘576 and we find no teaching that circuit 330 is operative to transfer charge from a charged first capacitance to a second capacitance.

The Examiner further finds that Johnson 730 “teaches the utilization of the similar technique for a transferring charge from first capacitor to second capacitor” (Ans. 4). We do not find support for this position in the section cited by the Examiner (col. 4, ll. 15-21). We have reviewed Johnson

‘730 in full and we find no teaching of a precharge circuit operative to transfer charge from a charged first capacitance to a second capacitance.

The Examiner’s asserted combination of Johnson ‘576 and Johnson ‘730 therefore fails to set forth a prima case of obviousness. Accordingly, because Appellant has shown error in the Examiner’s rejection of independent claims 1, 20, 25, and 40, we will not sustain the rejection of claims 1-18 and 20-48 under 35 U.S.C. § 103(a).

CLAIM 19

The Examiner finds that “[a]ccording to claim 19, a pre-charge circuit is a buck converter coupled to DC bus” and that Johnson ‘576 shows converter 330 coupled to the DC bus (Ans. 7, citing Johnson ‘576 Fig. 3). The Examiner cites Johnson ‘730, without further explanation, for “buck converter and boost converter topology” (Ans. 4).

We are not persuaded by the Examiner’s position. While the section of Johnson ‘730 cited by the Examiner (cols. 9-12) describes converter 600’s ability to operate in “buck” and “boost” phases (FF 3), the Examiner fails to explain with any particularity where one may find (and we are unable to find) any specific teaching of a “buck converter circuit coupled to the DC bus operative to charge a capacitance coupled to the DC bus” and “a boost converter circuit coupled to the DC bus operative to commence generating a DC voltage on the DC bus from an AC source and/or a DC source after the buck converter circuit precharges the DC bus,” both of which are required by claim 19. Appellant has, thus, demonstrated that the combination of Johnson ‘576 and Johnson ‘730 fails to establish a prima facie case of obviousness.

Accordingly, Appellant has shown error in the Examiner's rejection of claim 19, and we will not sustain the rejection of claim 19 under 35 U.S.C. § 103(a).

CONCLUSIONS OF LAW

1. Appellant has shown that the Examiner erred in finding that Johnson '576 in combination with Johnson '730 teaches a precharge circuit coupled to a DC link and operative to charge a first capacitance between a first DC bus and a reference bus and to transfer charge from the charged first capacitance to a second capacitance between a second DC bus and the reference bus.

2. Appellant has shown that the Examiner erred in finding that Johnson '576 in combination with Johnson '730 teaches a buck converter circuit coupled to the DC bus, and a boost converter circuit coupled to the DC bus operative to commence generating a DC voltage after the buck converter circuit precharges the DC bus, as recited in claim 19.

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Application 10/808,007

ORDER

The Examiner's rejection of claims 1-48 under 35 U.S.C. § 103(a) is reversed.

REVERSED

ELD

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